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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	CP-RW-2016-11-16-01 **Date: 18-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.
Address	:	Yelahanka new town sub division, BBMP, Bangalore.
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.
Agency	:	BB Umesh (SMLP Construction & Asphalt)
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-11-16
Sample ID No	:	2016-11-16-01/01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	16-11-16
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	326	326	3.0	97.0	95-100
22.4	2263	2589	23.5	76.5	60-80
11.2	2176	4765	43.3	56.7	40-60
4.75	2262	7027	63.9	36.1	25-40
2.36	1609	8636	78.5	21.5	15-30
0.6	618	9254	84.1	15.9	8-22
0.075	1354	10608	96.4	3.6	0-5

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID	:	CP-RW-2016-11-16-01	**Date: 18-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.	
Address	:	Yelahanka new town sub division, BBMP, Bangalore.	
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.	
Agency	:	BB Umesh (SMLP Construction & Asphalt)	
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	16-11-16	
Sample ID No	:	2016-11-16-01/01	
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)	
Date of test	:	16-11-16	

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	304.2	304.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	229.9	229.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.3
5	Aggregate impact value	(B/A)*100	24.3	24.3
6	Aggregate impact value (Mean of two tests)	Pecentage	24.3	

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2016-11-16-01** **Date: 18-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.
Address	:	Yelahanka new town sub division, BBMP, Bangalore.
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.
Agency	:	BB Umesh (SMLP Construction & Asphalt)
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-11-16
Sample ID No	:	2016-11-16-01/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	16-11-16

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	14.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.6%	
Combined Flakiness and Elongation Index for WMM	28.5%	

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TEST REPORT ON BITUMEN

Lab ID	:	**CP-2016-11-17-01** **Date: 19-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.
Address	:	Yelahanka new town sub division, BBMP, Bangalore.
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.
Agency	:	BB Umesh (SMLP Construction & Asphalt)
Customer's Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-11-16
Sample ID No	:	2016-11-17-01/01
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	18-11-16

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	68	60 to 70
2	Softening Point, °C	49.2	Min. 40°C
3	Ductility, cm	96	Min. 75cm
4	Flash point, °C	226	Min. 220°C
	Fire point, °C	238	

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	CP-RW-2016-11-23-01 **Date: 26-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.
Address	:	Yelahanka new town sub division, BBMP, Bangalore.
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.
Agency	:	BB Umesh (SMLP Construction & Asphalt)
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	23-11-16
Sample ID No	:	2016-11-23-01/01
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of test	:	24-11-16
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	82	82	1.6	98.4	90-100
9.5	710	792	15.8	84.2	70-88
4.75	889	1681	33.6	66.4	53-71
2.36	592	2273	45.5	54.5	42-58
1.18	502	2775	55.5	44.5	34-48
0.6	497	3272	65.4	34.6	26-38
0.3	533	3805	76.1	23.9	18-28
0.15	451	4256	85.1	14.9	12-20
0.075	342	4598	92.0	8.0	4-10
PAN	402	5000	100	0.0	0

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2016-11-23-01** **Date: 26-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.
Address	:	Yelahanka new town sub division, BBMP, Bangalore.
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.
Agency	:	BB Umesh (SMLP Construction & Asphalt)
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	23-11-16
Sample ID No	:	2016-11-23-01/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	23-11-16

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.44	11.33	10KN(min)
2	Marshal flow at 60°C, mm	3.42	3.61	2-4
3	Percent air Voids	4.61	4.74	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.31	14.19	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.36	70.63	65-75
6	Density, g/cc	2.25	2.28	–

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2016-11-23-01** **Date: 26-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP,
Address	:	Yelahanka new town sub division, BBMP, Bangalore.
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.
Agency	:	BB Umesh (SMLP Construction & Asphalt)
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	23-11-16
Sample ID No	:	2016-11-23-01/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	23-11-16

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	10.2	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	10.6		
Strength	Aggregate Impact Value	23.3	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.57	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.25	Maximum 2%	IS:2386 Part III

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2016-11-23-01**	**Date: 26-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.	
Address	:	Yelahanka new town sub division, BBMP, Bangalore.	
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.	
Agency	:	BB Umesh (SMLP Construction & Asphalt)	
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	23-11-16	
Sample ID No	:	2016-11-23-01/01	
Type of Mix	:	BC(Bitumenous Concrete)	
Date of test	:	23-11-16	

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	97.5	2.5	97.8	Minimum Retained Coating 95%
2	98.0	2.0		
3	98.0	2.0		

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID	:	CP-RW-2016-11-28-01 **Date: 29-11-16**
Customer	:	Assistant Executive Engineer, Yelahanka new town sub division, BBMP, Bangalore.
Address	:	Yelahanka new town sub division, BBMP, Bangalore.
Project Name	:	Providing pothole filling in Doddabettahalli, Chikkabettahalli, AMS Layout, Sainagara and other areas in Attur Ward No.03 Yelahanka New Town Sub Division.
Agency	:	BB Umesh (SMLP Construction & Asphalt)
Customer Reference	:	BBMP/EE(YNK.D)/W.O/39/2016-17
Source of Sample	:	Sample supplied by Agency
Date of Receipt	:	28-11-16
Sample ID No	:	2016-11-28-01/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	28-11-16

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	501	501
2	Weight of the sample After extraction	B	474	473
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.39	5.59
4	Average percentage	%	5.5	

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Lab ID : CP-RW-2016-11-28-01
Sample ID : 2016-11-28-01/01
Date: 29-11-16

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	6	6	1.3	98.7	90-100
9.5	59	65	13.7	86.3	70-88
4.75	128	193	40.7	59.3	53-71
2.36	72	265	55.9	44.1	42-58
1.18	29	294	62.0	38.0	34-48
0.6	17	311	65.6	34.4	26-38
0.3	37	348	73.4	26.6	18-28
0.15	39	387	81.6	18.4	12-20
0.075	56	443	93.5	6.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	7	7	1.5	98.5	90-100
9.5	55	62	13.1	86.9	70-88
4.75	130	192	40.6	59.4	53-71
2.36	75	267	56.4	43.6	42-58
1.18	27	294	62.2	37.8	34-48
0.6	22	316	66.8	33.2	26-38
0.3	42	358	75.7	24.3	18-28
0.15	36	394	83.3	16.7	12-20
0.075	53	447	94.5	5.5	4-10

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